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ABSTRACT

This paper reports a procedure designed to enable a school district to measure the adequacy of its educational facilities. Reasonable adherence to the guidelines described regarding scale development and implementation should provide a useful comparative tool with broad applicability. The report includes a general description of the procedure using five factors, an illustration of scale development, and a review of guidelines. It is stressed that the procedure is not a scale per se. The rationale is that it is expected that there will be variation among districts regarding which building factors to rate. Hence, a general method as opposed to a fixed scale should provide the flexibility needed for local application. The procedure is straightforward, and it contains some supporting documentation. Reliability and validity data are presented for an example of procedure application. References to earlier work are provided along with a sample rating scale.
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A Method to Compare Building Program Facilities

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Abstract

This paper reports a procedure designed to enable a school district to measure the adequacy of building program facilities. Need for development of the procedure arose in connection with a study of elementary school closings. It is indicated that reasonable adherence to the guidelines described regarding scale development and implementation should provide a useful comparative tool with broad applicability.

The report includes a general description of the procedure using five factors, an illustration of scale development, and a review of guidelines. It is stressed that the procedure is not a scale per se. The rationale is that it is expected there will be variation among districts regarding which building factors to rate. Hence, a general method as opposed to a fixed scale should provide the flexibility needed for local application. In addition, the procedure is straightforward to follow, and it contains some supporting documentation. Reliability and validity data for the illustration are then presented. References to earlier work are provided along with a sample rating scale.

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A Method to Compare Building Program Facilities

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This paper reports a procedure designed to enable a school district to measure the adequacy of building program facilities. Need for development of the procedure arose in connection with a study of elementary school closings (Puleo, 1982 a,b,c). Reasonable adherence to the guidelines described herein regarding scale development and implementation should provide a useful comparative tool with broad applicability.

General Description

The procedure attempts to provide a quantitative estimate of a consideration that is important in any review of capital facilities, that is, how suitable are the physical features of a school for the conduct of educational programs? For example, in comparison to other schools in the district, is the gymnasium of adequate size? Or, are there important differences in outside play or recreational areas?

It is important to note that the procedure described below is not a scale per se. The rationale is that it is expected there will be variation among districts regarding which building factors to rate. Hence, a general method as opposed to a fixed scale should provide the flexibility needed for local application. In addition, the procedure is straightforward to follow, and it contains some supporting documentation.

To implement the procedure, a series of factors are first identified which are essential for local program performance.

Definitions are stated and agreed upon, and the scale is then piloted. Next, the factors are independently rated in a Likert-fashion on a range of 1 to 10 in terms of a judgment of adequacy. Judgment, as opposed to opinion or perception, is stressed inasmuch as the scale seeks to establish a factual basis for the ratings. The ratings of the factors are then summed by school for comparative review.

Described in the following is one illustration of the procedure. Supporting statistical evidence indicates that a reliable and valid scale can be produced.

An Illustration of Scale Development

Five factors of local relevance were identified by a team of two Elementary Principals, an Elementary Curriculum Supervisor, and an Elementary Assistant Superintendent for Instruction. Criteria used in discussion were: a) the factors should be limited in number; b) they should be the most critical aspects of a physical plant in relation to program, and, c) they should be amenable to explicit definition.

Tentative definitions of each factor were established. For example, "size of outside play area" was agreed to mean only school property - and not bordering park or recreational facilities. "Size of regular classrooms" was restricted to those rooms qualified according to New York State Education Department minimum square footage requirements. The five factors were:

- gym and cafeteria;
- size of library or Media Center;
- size of outside play area;
- size of regular classrooms;
- size of areas for special education and pupil personnel services.

The factors were next organized into a rating scale. Figure 1 shows one sample for possible use. The preliminary scale was then piloted on an elementary school not slated for later rating. Afterward, the responses of individual raters were tallied to reveal sources of disagreement. All areas of disagreement exceeding one point were reviewed in an effort to achieve consensus. In instances where consensus could not be reached, the standard was set by the Assistant Superintendent. In the course of this review factor definitions were re-examined.

The completed scale was then applied to twelve schools for the purpose of direct comparison. The actual ratings were assigned by the two Principals and Supervisor. The Assistant Superintendent also completed the scale but his scores were used to establish an independent standard by which concurrent validity was estimated.

Review of Guidelines

1. A limited series of factors of local relevance are identified.
2. Criteria involved in each factor are explicitly stated. This step is crucial in that, in effect, it creates the local definition of "adequacy of building program facilities."
3. The factors, and a clear statement of directions are incorporated into a preliminary rating scale.
4. The scale is piloted on a facility not involved in later rating. At least two raters are needed, one of which is the team leader. This party is the local source of validation.
5. The clarity of directions are reviewed as well as any aspect of the ratings which led to "substantial disagreement." This is defined as any disagreement greater than one point.

6. The final scale is applied to schools involved in the comparison.

Rating can be accomplished by a single rater, but on-site visitation to each facility is needed.

Reliability Data For Illustration

The maximum rating was 50 and the minimum was 5. The following descriptive statistics were obtained as an average of the three raters:

$$M = 33.64$$

$$SD = 7.47$$

The range in building ratings was 22.3 to 45.6. The standard error of the mean was 2.16, or 28.9% of the standard deviation.

To determine interrater reliability, pairs of ratings by factor by school were examined. Of the 180 pairings (5 factors x 3 raters x 12 schools) 83.9% either completely agreed, or disagreed by only one point. 93.9% of the pairings showed disagreement by no more than two points. An intraclass correlation was also calculated. This revealed that the average of the intercorrelations of the three sets of ratings was .942. The reliability of the mean of these three raters' ratings was .980.

Validity Data For Illustration

Concurrent validity was established by correlating the average of the three independent raters against the additional rater (Assistant Superintendent) who, because of experience, position, and training would tend to represent an expert independent standard. The resulting Pearson product-moment correlation was .956. Because of the limited number of schools involved, a rank order correlation was also calculated. This resulting coefficient was .934. The relationship of individual factors against the standard by school was also studied. These 60 pairs of

ratings revealed a product-moment correlation coefficient of .896.

The scale also possesses strong features of content validity inasmuch as the five factors are important aspects in virtually any elementary physical facilities review and were particularly pertinent for local purposes. Similarly, it might be argued that aspects of the construct of "adequacy of physical facilities" are plausibly represented by the results of the scale, although this line of validation has not been pursued.

References

Puleo, V. Weighing the factors- elementary school closings. The School Administrator, 1982a, May, 15-16.

Puleo, V. Rationale for the multifactor method of elementary school closing. ERIC, 1982b, ED-213-091.

Puleo, V. Practical aspects of a method of elementary school closing. ERIC, 1982c, ED-213-092.

Figure 1

SCHOOL BUILDING PROGRAM FACILITIES RATING SCALE

Directions: Visit each school to be rated and assess the factors shown below. For factor #1, rate as follows - 1 if gym and cafeteria combined, 2 to 10 if gym and cafeteria separate, with 2 = poor and 10 = excellent. For all other factors rate from 1 to 10, with 1 = poor, and 10 = excellent, depending on your judgment of adequacy. Note that, to the extent possible, ratings are to be based on a factual review and not on personal opinion or perception.

Factor	School				
1. Gym and cafeteria					
2. Size of library or Media Center					
3. Size of outside play area					
4. Size of regular classrooms					
5. Size of areas for special ed. and pupil personnel services					
Total Rating					